CONTINUOUS EXTRUSION
PROCESS IMPROVEMENTS

INCREASE PRODUCTION • REDUCE MAINTENANCE • REDUCE DOWNTIME • REDUCE SCRAP

NEEDLE CYLINDERS
KNOCKOUT CYLINDERS
We understand your unique requirements

Focused on the specific needs of the plastic packaging industry, PHD has worked with a wide range of continuous extrusion OEMs and user accounts to produce a variety of improved solutions for the industry.

Our components are the actuators of choice. Designed for long life, PHD products keep your blow molding lines running while increasing productivity and reducing downtime and scrap.

We also offer the added benefit of our rebuild program which refurbishes your existing PHD components, enabling even longer service life and savings.

To request more literature, visit www.phdinc.com/resources/inforequest/

Direct Replacements

**EASY DROP-IN**

With longer life, reduced maintenance, and reduced downtime

We offer a wide variety of direct replacement components. Our drop-in components save you money by reducing costly production downtime and maintenance costs.

Many of our components provide up to twice the life of the original unit. This means longer up time for higher production and higher profits.

Superior Delivery

**FASTER delivery than competitor**

Excellent delivery saves you money by getting you back to business faster.

Unique Solutions

**Special Requirements**

PHD offers a variety of components already designed to fit unique requirements. If your application requires a modified component from outside our large database of designs, our team is ready to help. We welcome special requests, regardless of quantity or frequency of order. See page 10.

Rebuild Program

**Return to service**

Our products can be rebuilt and put back in service for continued savings. Plus you will receive a “like new” warranty. See page 11 for more information.

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# Replacement Reference Chart & Contents

## NEEDLE CYLINDERS

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## KNOCKOUT CYLINDERS

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Needle Cylinder Replacement

MAJOR BENEFITS

- Direct replacement for needle cylinders.
- Multiple strokes and bore sizes available.
- PHD Cylinder mounts into the same space and bolt patterns, provides significantly longer life and reduces maintenance and down time.
- Other standard and custom products are available for your automation requirements.

PHD’s non-rotating, adjustable cylinder provides superior blow pressure and exhaust. This eliminates suck-back even on the stickiest plastics including polypropylene.
MAJOR BENEFITS

• Direct replacement for continuous extrusion blow molding needle actuators.
• Provides significantly longer life and reduces maintenance and downtime.
• Internal needle orientation stud provides anti-rotational movement and allows the needle to be infinitely adjustable without increasing package length.
• Unique modular design provides a variety of design configurations without sacrificing delivery and price.
• Male rod ends have piloted ends to reduce concentricity issues with attached needles.
• Consult PHD for other custom needle cylinders and blow molding actuators to meet your automation requirements.
**ORDERING DATA:** SERIES BCN NEEDLE CYLINDER

To order specify:
- ML#, Port Configuration, Mounting Style, Design No., Bore Size, Stroke, and Options.

**MTL 305825**

- **PORT CONFIGURATION**
  - 3 - 3 Port, 12 mm Rod
  - 5 - 3 Port, 10 mm Rod
  - Consult PHD for 2 Port units

- **DESIGN NO.**
  - 1 - Imperial
  - 5 - Metric

- **OPTIONS**
  - T30 - Female Rod End
  - TMO - Male Rod End - High Flow
  - TRO - Oversize Female Rod End

- **STROKE**
  - 19 - 19 mm (.748 in)
  - 26 - 26 mm (1.024 in)

- **BORE SIZE**
  - 25 mm

- **BUMPERS**
  - Polyurethane. Extend and Retract

Other configurations are available. Contact PHD for options.

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**ENGINEERING DATA:** SERIES BCN NEEDLE CYLINDER

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>IMPERIAL (1)</th>
<th>METRIC (5)</th>
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<tbody>
<tr>
<td>TYPE</td>
<td>Blow Mold Needle Actuator</td>
<td></td>
</tr>
<tr>
<td>SERIES</td>
<td>BCN</td>
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</tr>
<tr>
<td>BORE SIZE</td>
<td>0.984 in</td>
<td>25 mm</td>
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<tr>
<td>BORE AREA</td>
<td>0.761 in²</td>
<td>4.91 cm²</td>
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<tr>
<td>THEORETICAL OUTPUT</td>
<td>66.2 lb @ 87 psi</td>
<td>294.5 N @ 6 bar</td>
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<tr>
<td>OPERATION</td>
<td>Double Acting</td>
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</tr>
<tr>
<td>OPERATING PRESSURE RANGE</td>
<td>7.5 - 150 psi</td>
<td>0.5 - 10 bar</td>
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<tr>
<td>AMBIENT TEMPERATURE</td>
<td>-18.4°F to 176°F</td>
<td>-28°F to 80°C</td>
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<tr>
<td>LUBRICATION; FOOD GRADE</td>
<td>FDA Regulation 21 CFR 1789.3570</td>
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</tr>
<tr>
<td>PORT SIZE</td>
<td>1/8 NPT [1/8 BSPP]</td>
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<tr>
<td>STROKE TOLERANCE</td>
<td>+.059/- .000</td>
<td>+ 1.5/- .000</td>
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<tr>
<td>WEIGHT @ 25 mm STROKE</td>
<td>1.1 lb</td>
<td>0.50 kg</td>
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<tr>
<td>BUMPERS</td>
<td>Polyurethane. Extend and Retract</td>
<td>Anodized Aluminum</td>
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<tr>
<td>HEAD</td>
<td>Anodized Aluminum</td>
<td>Chrome Plated Stainless Steel</td>
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<tr>
<td>CYLINDER BODY</td>
<td>Engineered Polymer</td>
<td>Polyurethane</td>
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<tr>
<td>PISTON ROD</td>
<td>Hardcoated PTFE Aluminum</td>
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<tr>
<td>ROD BEARING</td>
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<tr>
<td>PISTON &amp; ROD SEALS</td>
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<tr>
<td>PISTON</td>
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DIMENSIONS: SERIES BCN NEEDLE CYLINDER

3 PORT CONFIGURATION

T30 - Female Rod End

TMO - High Flow Male Rod End

TR0 - Oversize Female Rod End

T1 Mounting Style

N Mounting Style

All dimensions are reference only unless specifically tolerated.

www.phdinc.com • (800) 624-8511
More needle & knockout actuators are available.

PHD has designed direct replacements for various continuous extrusion blow molding needle and knockout cylinders.

In addition, PHD offers the service of our Unlimited Unique Solutions group. With Unique Solutions, we have the ability to design specific needle and knockout cylinder replacements that will fit your particular machine. Benefits include significantly longer life and reduced maintenance and downtime. PHD unique modular designs provide a variety of configurations without sacrificing delivery and price.

PHD needle cylinders offer internal needle orientation stud which provides anti-rotational movement and allows the needle to be infinitely adjustable without increasing package length.

Male rod ends have piloted ends to reduce concentricity issues with attached needles.

Optimized mold-mounted knockout cylinder designs meet your unique needs while eliminating mechanical or machine mounted knockouts, thus improving the process and product consistency.

Contact PHD for more needle and knockout cylinder solutions.

• Most quotes delivered within eight working hours
• Dedicated application assistance
• 24 hours a day, 7 days a week service
• Fast delivery and competitive pricing
• CAD files available prior to ordering
• Geared towards short-run requests
• All units receive an "ML" number when ordered. This number, along with all specifications, is kept on permanent record at PHD for future reference and reorders.

To request a free brochure, visit www.phdinc.com/resources/inforequest/
Rebuild Program

REBUILD REPAIR RECYCLE

Return your old units for rebuilding

Get a 12 Month “Like New” Warranty

Plastic Packaging Components such as Stretching Cylinders, Transfer Arms, Blow Nozzles, Filler Cylinders, Slip Sheet Grippers, and Eject Slides are rebuildable.

REBUILD IT YOURSELF OR ALLOW PHD?

PHD’s rebuild program can save your facility training, additional work load, possible tool requirements, and facility space to perform the rebuilds. In addition, you will receive a 12 month “like new” warranty.

PHD’s Rebuild Program refurbishes your existing PHD products with all new wear items.

Rebuilt units offer the same PHD quality that you’re used to, but for a fraction of the cost of a new unit, reducing your total cost of ownership.

Rebuilt units are placed back into service, thus reducing your total cost and saving valuable components from scrap.

All PHD factory rebuilt units receive a 12 month “like new” warranty.
OTHER SOLUTIONS

KRONES®

BCS Stretching Cylinders
Sidel® Series1, Series2 and Universal direct replacement
X27 PHD check valve option

BCZ Nozzle Cylinders
Sidel® Series2 and Universal direct replacements
Valve manifold assembled to cylinder available as standard

BCK Stretching Cylinders
Krones® direct replacement
Simplified pneumatic system

Eject Cylinder
ML309880 and ML310656
Krones® direct replacement
Provides rapid repeatable ejection function due to MAC valve design and PHD cylinder.
High kinetic energy capacity
Provides faster delivery times than OEM product
In many cases lower cost solution than OEM product
Intended for high speed part rejection

Transfer Arm Head
ML311628
Krones® direct replacement

BST1 Transfer Arms
Sidel® Series1 direct replacement
Significantly more robust and precise than other transfer arms
Designed to operate over 20 million cycles

BST2 Transfer Arms
Sidel® Series2 direct replacement
Vertical height adjustment eliminates need for shims
Designed to operate over 20 million cycles

Preform Bottle Eject Slide
Sidel® Series2 direct replacement
Consistent preform/bottle ejection
Minimizes stress on transfer arm jaws

Slip Sheet Gripper
Modular assembly consisting of a clamp, slide and transition plate
Clamp provides a wide opening so slip sheets are not missed
Quick installation and easy maintenance

Fill Line Eject Slide
ML309590
Repeatable ejection
High kinetic energy capacity
Uses proven PHD thruster slide technology

Cam Follower Wheels
Competitive pricing
Longer life than OEM
Available in variety of material

To request more literature, visit www.phdinc.com/resources/inforequest/